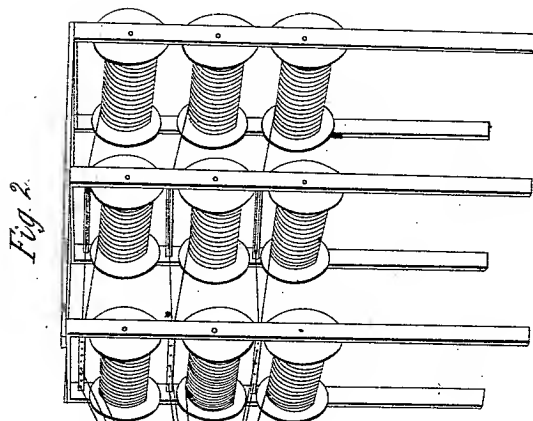


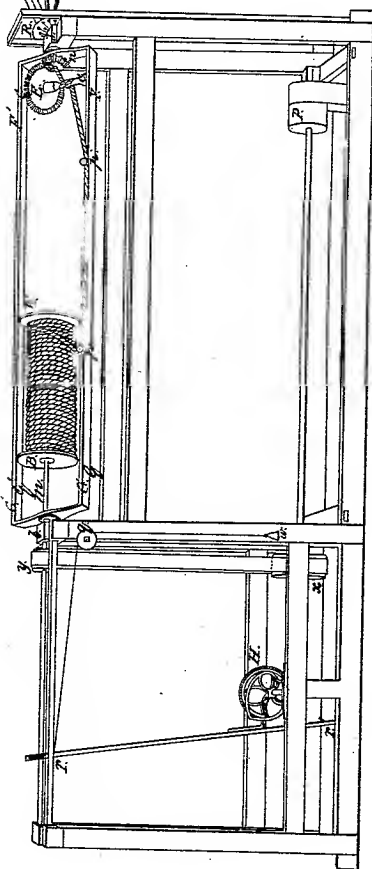
*M. Day.*  
*Cordage Mach.*

*N<sup>o</sup> 596.*

*Patented Feb. 7, 1838.*



*Fig. 1.*



*Witnesses,*  
*Young & Holland*  
*By J. W. Woodman.*

*Inventor.*  
*M. Day*

# UNITED STATES PATENT OFFICE.

MOSES DAY, OF ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR MAKING AND TWISTING STRANDS IN THE PROCESS OF MAKING ROPE.

Specification forming part of Letters Patent No. 596, dated February 7, 1838.

*To all whom it may concern:*

Be it known that I, MOSES DAY, of Roxbury, in the county of Norfolk and Commonwealth of Massachusetts, have invented, constructed, and applied to use a new and useful Machine for Forming Strands and Winding or Packing the Same on a Bobbin, which by means of said machine may be done at one operation, of which the following is a specification.

Said machine is made by an addition hereinafter described to my patent spinning-machine, for which machine I obtained Letters Patent under the seal of the United States bearing date the 2d day of June, A. D. 1836, and the improved machine I call a "patent strand-maker." The said addition to my patent spinning-machine whereby it becomes a strand-maker will appear by reference to the annexed drawings, with the following explanations. The said spinning-machine has an iron frame called a "flier," (represented by F F' G G' in Fig. 1 of the annexed drawings,) fitted to a frame of wood of sufficient size. The end of the flier F F' revolves on a horizontal circular tube (represented at *g*) and at the other end on an axle, which rests on the end of the wooden frame and is covered by a box at *b*. Through the horizontal circular tube on which the end of the flier revolves tubes of a larger or smaller diameter may be fitted, and through the axis at the other end of the flier is also a circular tube. A band from the steam-engine or other power passes over a drum at C, and then by another band passing over a drum at the opposite end of the shaft at *x*, and also over a drum at *y* on the axis of the flier, a revolving or rotary motion is communicated to the flier. Through the circular tube in the axis of the flier, which is sufficiently large for the purpose, passes a mandrel, (represented at *m*), on the end of which is placed a bobbin B B', which is prevented from turning on the mandrel by applying a sufficient degree of friction between the head of the bobbin and the mandrel. A horizontal motion forward and backward through the circular tube in the axis is communicated to the mandrel by means of an iron rod at *r*, which at its upper end is fixed to the mandrel and plays freely on a pin passing through it at the lower end at *r'*. A weight

at *w*, passing over a pulley at *q* and connected with the iron rod at *r*, pulls the rod forward, which is again carried backward by the revolution of a wheel at H, having a heart movement bearing on the rod. This wheel is connected by gearing with the shaft from which the band is carried to the flier. A small capstan is placed between the opposite sides of the flier, the ends of which are inserted in the two sides of the flier, as represented at *e e'*. Motion is given to this capstan by means of a beveled wheel of which it is the axis, (represented at E.) This wheel is connected with another beveled wheel at *n*, which is fixed on the end of the circular tube on which the flier revolves. As the flier revolves, a rotary motion is given to the capstan at right angles to the revolution of the flier.

The addition to my spinning-machine by which it becomes a strand-maker consists simply in affixing on the end of the machine a short distance from the circular tube on the end of which the flier revolves a gage-plate or register-plate R, with holes drilled through it in concentric circles.

The process by which the strand is formed and wound or packed on the bobbin is as follows: From a bobbin-frame (represented by Fig. 2 in the annexed drawings) the threads are carried to Fig 1 and passed through the holes of the gage-plate in the same manner as in the common mode of forming strands. They are then brought together and passed through the circular tube, whence the strand comes out at *o*. It then passes round the capstan a sufficient number of times to make it secure. From the capstan it is carried over two pulleys at *p p* on the side of the flier, and thence is taken up by the bobbin B B'. The rotary motion of the capstan draws forward the strand, which, while it passes from the circular tube at *o* to the capstan, is twisted or formed by the revolution of the flier. After it has passed from the capstan it is carried over the pulleys at *p p* to the bobbin B B', upon which it is at the same time wound or packed by the revolution of the flier.

This mode of forming a strand has two prominent advantages over the mode in common use.

First. The twist is given only to that part of the strand which is at any one time pass-

ing between the circular tube at *o* and the capstan, so that the same degree of twist is given to the strand uniformly throughout its whole length. In the mode in common use the gage-plate and circular tube are permanent and stationary, while the spindle which twists or forms the strand is turned by a movable machine which is continually receding from the circular tube as fast as the strand passes through it, and the strand supported at proper intervals by rests is being twisted its whole length while it is forming. As a necessary consequence, it is not twisted in a uniform degree in all its parts, but the part first formed being nearer the spindle receives the greatest degree of twist and the other parts less, as they are more remote from the spindle.

Secondly. The strand being wound or packed on a bobbin as fast as it is formed, there is no need of a great length of walk, as in the common mode, but the whole process of forming the strand and winding or packing the same may be performed in a room only of sufficient size to accommodate the machine and bobbin-frame.

A machine upon the above construction with the improvement above specified may be used for the purpose of forming any number of threads into a strand or for the pur-

pose of twisting spun yarn by increasing or diminishing the number of and size of the holes in the gage-plate, and the size of the circular tube on which the end of the flier revolves.

The present application is for a patent for the same invention intended to be described in a former application made by me under date of 24th of January last, with amendments in the description of the same and in the manner of stating my claim, as suggested in a letter from the Patent Office under date of November 24, 1837, subscribed by I. W. Hand, Esq., returning my said original application to be thus amended.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the gage-plate with a flier, constructed and operated substantially as herein described.

In testimony whereof I, the said MOSES DAY, hereunto subscribe my name, in presence of the witnesses whose names are hereto subscribed, this 5th day of January, in the year of our Lord 1838, at Boston, in the State of Massachusetts.

MOSES DAY.

Witnesses:

WM. J. HUBBARD,  
CYRUS WOODMAN.